



## Peer phubbing and selfie liking: The roles of attention seeking and gender

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We explored the relationship between being phubbed by one's peers and selfie liking, and examined the mediating effect of attention seeking and the moderating effect of gender in this relationship. An online survey was conducted with 427 university students. The results reveal that peer phubbing was positively related to attention seeking and selfie liking. Further, attention seeking was positively related to selfie liking, and attention seeking mediated the relationship between peer phubbing and selfie liking. The indirect pathways involved gender differences, with a stronger indirect effect for men compared to that for women. Thus, gender moderated the relationship between peer phubbing and attention seeking, as well as the relationship between attention seeking and selfie liking. These findings illustrate that selfie-related behaviors may function as a buffer for being phubbed. Moreover, phubbed individuals are prone to engage in attention-seeking behavior and frequent selfie liking.

### Keywords

peer phubbing; selfie liking; attention seeking; gender differences; cell phone use; social interaction; social exclusion

It is common to see people using the camera on their cell phone to take self-portrait photographs (i.e., *selfies*). Even though taking and sharing selfies has become trendy among young adults and teenagers (Berg, 2018), some psychologists argue that this behavior is likely a symptom of body dysmorphic disorder (Perrotta, 2020; Tremblay et al., 2021). Scholars have even found associations between selfie-related behavior and trait self-objectification, narcissism, Machiavellianism, and psychopathy (Fox & Rooney, 2015). However, despite the negative implications of selfie-related behavior, taking selfies may benefit people because of the social value of these photographs. For example, Harpaz (2014) argued that individuals may form relationships or strengthen social attachments through selfie-related behaviors.

Taking and posting selfies has become a popular way of establishing a positive public image of oneself, which has proven to be effective for cultivating a sense of belonging (Etgar & Amichai-Hamburger, 2017). Additionally, people who enjoy taking selfies may consider it an important daily activity, as they are able to improve their self-presentation via editing and posting their selfies, which attract their peers, and they obtain positive feedback (Coulthard & Ogden, 2018), allowing the people who are posting their photographs to establish a sense of individuality and importance (El Khoueiry et al., 2020). In this regard, Charoensukmongkol (2016) defined *selfie liking* as "the degree to which individuals feel emotionally

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connected to selfies and integrate them into their daily activities (p. 2).” In the context of Chinese social media, people usually post selfies on WeChat Moments and MicroBlog.

*Phubbing*, another buzzword due to the popularity of cell phones, is a portmanteau term that combines the words “phone” and “snubbing” (Karadağ et al., 2015); this term is used to describe a worldwide phenomenon whereby people choose to focus on their cell phones at the expense of physical social interaction (Roberts & David, 2016). Phubbing is becoming a social norm (Chotpitayasunondh & Douglas, 2016), and researchers have found that being phubbed makes people feel dissatisfied with the quality of their relationships (Roberts & David, 2016) and communication (Vanden Abeele & Postma-Nilsenova, 2018), causing depression (Xie & Xie, 2020).

Because phubbing is a kind of social exclusion (Nuñez et al., 2020), individuals may desire to gain social reconnection after being phubbed (DeWall & Richman, 2011). Taking and posting selfies may be socially valuable in helping phubbed individuals form relationships and reconnect with their social circle (Harpaz, 2014). In turn, this would indicate that phubbing is a potential antecedent to selfie liking. Little is known regarding the association of phubbing with selfie liking. Therefore, we addressed this gap in the literature by exploring the association between phubbing and selfie liking, arguing that they may be indirectly connected through attention seeking.

## Literature Review and Hypothesis Development

### Peer Phubbing and Selfie Liking

*Peer phubbing* refers to individuals being phubbed by their peers during social interaction (Hao et al., 2020). To understand the relationship between peer phubbing and selfie liking, we framed phubbing as a specific form of social exclusion (Chotpitayasunondh & Douglas, 2018; Nuñez et al., 2020). According to the theory of basic human needs, being socially excluded threatens individuals’ fundamental human needs for self-esteem, sense of belonging, control, and belief in a meaningful existence (Zadro et al., 2004). Individuals who experience social exclusion may attempt to fortify or replenish their thwarted needs (Williams, 2007). Further, establishing social relationships is a basic human need, so that when someone experiences social exclusion, such as being phubbed, the desire to obtain a sense of inclusion is activated (DeWall & Richman, 2011).

As communication via social media provides a context for social interaction (Cheng et al., 2017), individuals may perform selfie-related behaviors on social media sites to restore a sense of belonging (Etgar & Amichai-Hamburger, 2017). Ceylan and colleagues (2019) argued that being socially excluded increases one’s willingness to share selfies in order to restore a sense of social connectedness. Thus, in the case of phubbing, participating in selfie-related behavior and experiencing selfie liking constitute an attempt to replenish and fortify one’s need for belonging.

*Self-esteem* refers to an individual’s positive self-evaluation (Rosenberg et al., 1995), and is associated with social exclusion (Arslan, 2019), as being excluded may decrease self-esteem (Stewart et al., 2017; Wirth et al., 2017). Leary et al. (1995) stated that excluded individuals attempt to boost their self-esteem by offsetting the effect of social exclusion. A selfie may serve as a proxy of one’s ideal and controlled self (Alblooshi, 2015; Barry et al., 2017), so taking selfies and posting them on social media sites may function as a way to boost self-esteem (Hulme et al., 2012). Given the connection between phubbing and selfie-related behavior, we developed the following hypothesis:

**Hypothesis 1:** Peer phubbing will positively predict selfie liking.

### Peer Phubbing and Attention Seeking

Individuals’ sense of control and belief in a meaningful existence may be threatened by social exclusion (J. Lee & Shrum, 2012). When individuals are excluded (e.g., through phubbing), they may feel they are losing

control over their surroundings (Su et al., 2017). J. Lee and Shrum (2012) posited that attention seeking can be a way of restoring one's sense of control. Additionally, social exclusion induces feelings of being nonexistent during social interaction, or at least of being socially invisible (Williams, 2001), which undermines the excluded individuals' belief that their existence is meaningful (Pyszczynski et al., 2004). Warburton and Williams (2005) demonstrated that a decrease in individuals' sense of meaningfulness may motivate them to gain more attention by boosting their social visibility. Specifically, attention seeking on social media may function as a means of recovering from social rejection (Hawk et al., 2019). Thus, we argued that phubbed individuals may seek to regain their sense of control and belief in a meaningful existence by engaging in attention-seeking behaviors. On the basis of the preceding arguments, we developed the following hypothesis:

**Hypothesis 2:** Peer phubbing will positively predict attention-seeking behaviors.

### Attention Seeking and Selfie Liking

In the context of this study, *attention seeking* refers to selfie-related attention-seeking behavior. Posting selfies on social media constitutes an attention-seeking behavior (Hardman Taylor et al., 2017). The reasons that individuals post selfies on social media may range from wanting to remember a specific event to seeking to attract others' attention (Huang, 2018). Sung et al. (2016) found that attention seeking was a key factor driving selfie-related behaviors. Chua and Chang (2016) conducted a survey with teenaged girls in Singapore and reported that all the girls expected to gain their peers' attention by taking and posting selfies, and the number of likes generated by their posts represented the attention they received, such that more likes represented more attention. As posting selfies may fulfill individuals' need for attention (Huang, 2018), individuals tend to perceive selfie-related behavior as an important daily activity. Charoensukmongkol (2016) found that attention seeking was positively associated with selfie liking, and stated that people may feel emotionally connected to their selfies. Drawing on these findings, we developed the following hypothesis:

**Hypothesis 3:** Attention seeking will positively predict selfie liking.

By combining the above hypotheses, we also developed the following hypothesis:

**Hypothesis 4:** Attention seeking will act as a mediator in the relationship between peer phubbing and selfie liking.

### Gender Differences

Several studies have depicted selfie-related behaviors as a gender-based process (Arpaci et al., 2018; El Khoueiry et al., 2020). For example, researchers have reported that women are more likely to take selfies, regardless of whether the photographs are taken when the person is alone or with others (Sorokowska et al., 2016), and that women also concentrate more than men do on exhibiting their selfies to gain positive feedback, such as obtaining "likes" on social media (Coulthard & Ogden, 2018). Although both men and women tend to use selfies for self-presentation, their motivations differ (Weiser, 2015). Weiser found that the more adaptive leadership/authority facet emerged as a stronger predictor of selfie posting among women than among men, whereas the maladaptive entitlement/exploitativeness facet predicted selfie posting among men, but not among women. Furthermore, gender differences have also been noted in phubbing behavior (Chotpitayasunondh & Douglas, 2016; Escalera-Chávez et al., 2020; Xie & Xie, 2020). These studies demonstrated that men have a stronger reaction than women do after being phubbed.

As no study has previously been conducted to demonstrate gender difference regarding the relationship between phubbing behavior and selfie-related behavior, we put forward research questions to explore the gender differences in the indirect effect of peer phubbing on selfie liking, as well as the mediating role of attention seeking (see Figure 1).

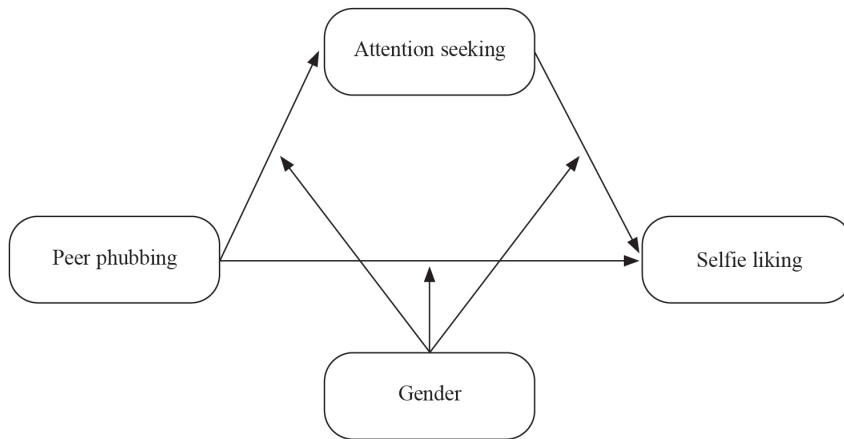


Figure 1. *Research Framework*

## Method

### Participants

We obtained ethical approval for this study from the Academic Ethics Committee of Fuzhou University of International Studies and Trade. We recruited students at three universities in southeast China to complete an online survey. Participants were assured that the process would be anonymous and that their data would remain confidential. We contacted about 1,000 students by posting either a survey link or a quick response code via instant messaging platforms (e.g., QQ and WeChat). The response rate was approximately 43%; of the 427 participants recruited, 128 were men (30%) and 299 were women (70%). They ranged in age from 18 to 36 years ( $M = 20.76$ ,  $SD = 2.46$ ).

### Measures

#### **Peer Phubbing**

We adopted the seven-item Peer Phubbing Scale (Hao et al., 2020) to assess peer phubbing. Sample items are “During a conversation with my peers, they check their cell phones” and “My peers place their cell phones where they can see them when we are together.” Participants rate the items on a 5-point Likert scale (1 = *never*, 5 = *always*). In this study Cronbach’s alpha was .92.

#### **Attention Seeking**

We adapted and revised the three-item attention-seeking subscale from the 20-item Selfitis Behavior Scale (Balakrishnan & Griffiths, 2018) to assess attention seeking. After discussing with two coauthors who themselves have selfie-related behavior experience, we modified the phrasing of the items. Sample items are “I try to gain a significant amount of attention from my peers by taking and sharing my selfies on social media” and “I try to gain more ‘likes’ from my peers by taking and sharing my selfies on social media.” Participants rate the items on a 5-point Likert scale (1 = *disagree*, 5 = *agree*). In this study Cronbach’s alpha was .92.

#### **Selfie Liking**

We adapted the six-item Selfie-Liking Scale (Charoensukmongkol, 2016) to assess selfie liking. Because of a low factor loading, we deleted one item (“I would be upset if someone tried to stop me from taking selfies”), resulting in a five-item scale. Sample items are “Taking selfies makes me happy” and “Taking selfies is an

important activity in my daily life.” Participants rate the items on a 5-point Likert scale (1 = *disagree*, 5 = *agree*). In this study Cronbach’s alpha was .79.

### Data Analysis

We used SPSS 24.0 to analyze the data and calculated Pearson product-moment correlations between variables. Subsequently, we applied the Model 4 of the PROCESS macro (Hayes, 2017) to test the mediation model, with attention seeking set as the mediator. When the results demonstrated the significance of the mediation model, we used the Model 59 of the PROCESS macro to investigate whether there was a gender difference in the relationship between peer phubbing and selfie liking. According to Hayes (2017), if the results show a 95% confidence interval (CI) that does not include zero, the model is considered significant.

## Results

### Bivariate Analyses

The results of the bivariate correlations were consistent with our expectations (see Table 1). Specifically, peer phubbing and attention seeking were positively associated with selfie-liking behavior. In addition, peer phubbing was positively associated with attention seeking.

Table 1. *Descriptive Statistics and Correlations*

Variables	<i>M</i>	<i>SD</i>	1	2	3	4
1. Gender	1.70	0.46	—			
2. Peer phubbing	3.87	0.83	.11**	—		
3. Attention seeking	3.47	0.89	-.04	.41**	—	
4. Selfie liking	3.60	0.62	.07	.45**	.50**	—

Note. \*\*  $p < .01$ .

### Mediating Effect Analyses

The results obtained with Model 4 of the PROCESS macro are shown in Table 2. We found that peer phubbing was a positive predictor of both attention seeking and selfie liking; these results supported Hypotheses 1 and 2. Further, attention seeking positively predicted selfie liking. Thus, Hypothesis 3 was supported. Finally, the indirect effect was significant, in line with Hypothesis 4.

Table 2. Results of Mediation Analysis (PROCESS Model 4)

Outcome	Attention seeking				Selfie liking			
	$\beta$ (SE)	<i>p</i>	95% CI		$\beta$ (SE)	<i>p</i>	95% CI	
			<i>LL</i>	<i>UL</i>			<i>LL</i>	<i>UL</i>
Phubbing	.45 (.048)	< .001	0.35	0.54	.22 (.033)	< .001	0.15	0.28
Attention seeking	—	—	—	—	.26 (.030)	< .001	0.21	0.32
Indirect path	Effect (SE)			95% CI				
				<i>LL</i>	<i>UL</i>			
Peer phubbing→ attention seeking→ selfie liking	.12 (.024)			0.08	0.17			

Note. CI = confidence interval; *LL* = lower limit; *UL* = upper limit.

### Moderated Mediating Test

The results obtained with PROCESS macro Model 59 are shown in Table 3. We found that the interaction between peer phubbing and gender did not significantly predict selfie liking. However, there was a significant interaction between peer phubbing and gender in terms of attention seeking. Additionally, peer phubbing positively predicted attention seeking in both men and women. The interaction plot is shown in Figure 2. The interaction between attention seeking and gender (see Figure 3) was significantly associated with selfie liking. Further, attention seeking was found to positively affect selfie liking for both men and women. In this model, the indirect effect was moderated by gender based on the index of moderated mediation. This path was also significant in both men and women.

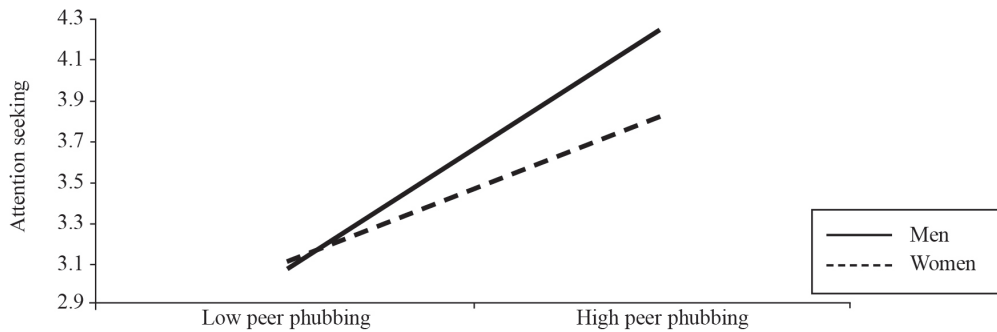
**Table 3. Results of Moderated Mediation Analysis (PROCESS Model 59)**

Outcome	Attention seeking				Selfie liking			
	$\beta$ (SE)	<i>p</i>	95% CI		$\beta$ (SE)	<i>p</i>	95% CI	
			<i>LL</i>	<i>UL</i>			<i>LL</i>	<i>UL</i>
Phubbing	.85 (.18)	< .001	0.51	1.20	.094 (.130)	> .05	-0.17	0.36
Phubbing × Gender	-.24 (.10)	< .050	-0.44	-0.04	.050 (.075)	> .05	-0.10	0.20
Phubbing (men)	.61 (.083)	< .001	0.45	0.78	.140 (.065)	< .05	0.02	0.27
Phubbing (women)	.38 (.058)	< .001	0.26	0.49	.190 (.038)	< .001	0.12	0.27
Attention seeking	—	—	—	—	.870 (.130)	< .001	0.61	1.14
Attention seeking × Gender					-.340 (.073)	< .01	-0.49	-0.20
Attention seeking (men)					.530 (.065)	< .001	0.40	0.66
Attention seeking (women)					.190 (.034)	< .001	0.12	0.25

Indirect path		Effect (SE)	95% CI	
			<i>LL</i>	<i>UL</i>
Peer phubbing → Attention seeking → Selfie liking	Men	.33 (.058)	0.22	0.45
	Women	.07 (.022)	0.03	0.12
	Index	-.26 (.062)	-0.38	-0.13

Note. CI = confidence interval; *LL* = lower limit; *UL* = upper limit.



**Figure 2. Simple Slopes Probing the Interaction Between Peer Phubbing and Gender When Predicting Attention Seeking**

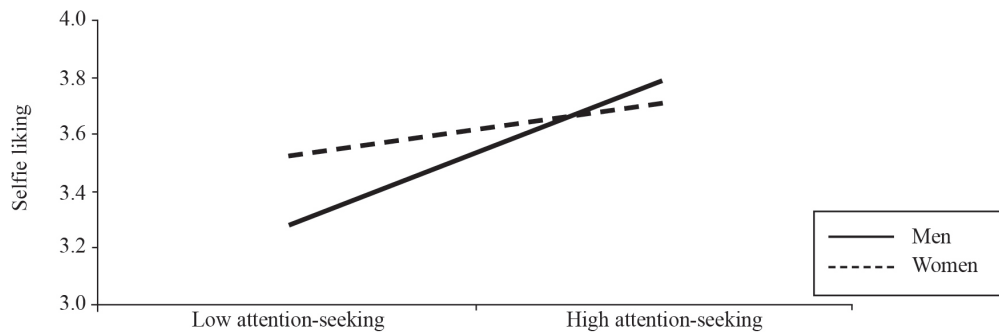


Figure 3. Simple Slopes Probing the Interaction Between Attention Seeking and Gender When Predicting Selfie-Liking

### Discussion

By applying basic human needs theory (Zadro et al., 2004), in this study we framed a moderated mediation model to examine how peer phubbing is associated with selfie liking. Our results illustrate that peer phubbing influenced selfie liking through attention seeking, and that gender moderated the mediating effect.

These results suggest that a strong correlation exists between peer phubbing and selfie liking among Chinese college students, supporting our hypothesis. As a specific form of social exclusion (Chotpitayasunondh & Douglas, 2018), phubbing may threaten individuals' need for self-esteem and belonging. In fact, when individuals' self-esteem and sense of belonging are threatened, they react by attempting to regain a sense of belonging (DeWall & Richman, 2011). As selfie-related behavior may potentially boost an individual's self-esteem (Hulme et al., 2012) and sense of belonging (Etgar & Amichai-Hamburger, 2017), while acting as a buffer to being phubbed, the phubbed individual might engage in frequent selfie liking. In addition, as no gender differences were observed in this association, it is possible that there is no difference between men's and women's response to peer phubbing vis-à-vis its impact on their self-esteem and sense of belonging. Thus, both men and women may have an equal desire to take advantage of selfie-related behavior to offset the negative effects of being phubbed, developing a similar propensity for selfie liking. This finding is consistent with those reported by Leary et al. (1995) and Twenge et al. (2007).

Our findings may help to reveal the mechanism underlying the relationship between peer phubbing and selfie liking by introducing attention seeking as a mediator. First, as predicted, peer phubbing may be an antecedent of attention seeking, as individuals who experienced phubbing intended to regain a sense of control and of the meaningfulness of existence via selfie-related attention seeking. This result is in line with the work of Hawk et al. (2019), who identified that individuals' attention seeking on social media was a beneficial strategy in their effort(s) to recover from social rejection. Second, our findings illustrate that attention seeking was positively associated with selfie liking, which is consistent with the finding of Charoensukmongkol (2016).

Finally, our study results show that peer phubbing had an indirect influence on selfie liking via attention seeking. This indirect effect was moderated by gender, with a stronger effect occurring for men than for women. This result reflects the moderating effect of gender in the relationship between peer phubbing and attention seeking, as well as between attention seeking and selfie liking. Further, the interaction plots show that when men were being phubbed, they were more likely than were women to engage in attention-seeking

behaviors and selfie liking. These results are in line with those of previous studies demonstrating that men are prone to pursue power (Lyons et al., 2005) because they expect to possess more power and more control during social interactions (Diekmann et al., 2004). Compared with women, men have a stronger drive to achieve goals (Stroud et al., 2002) that enhance their sense of a meaningful existence (Machell et al., 2015). In the context of our study, when experiencing peer phubbing, men may have had a stronger drive than women did to regain a sense of control and of a meaningful existence through selfie-related attention-seeking behaviors. When their needs for control and meaningfulness are met, men exhibit more selfie liking than women do.

### **Study Limitations and Future Research Directions**

This study has some limitations. First, our data were obtained from a cross-sectional survey, so the results do not reflect dynamic relationship developments. Thus, future researchers could design longitudinal or experimental models to confirm our conclusions. Second, our study sample was recruited from three universities in Fujian Province, China. This model could be tested more extensively with participants from other universities and other occupations and of various ages, to enhance the external validity. An association between narcissistic traits and selfie-related behavior has been identified in a number of studies (J.-A. Lee & Sung, 2016; McCain et al., 2016) as has the linkage between attention seeking and narcissism (Sung et al., 2016). Narcissism may also act as a potential moderator of the relationship between attention seeking and selfie liking, so this possible moderating effect could also be investigated in future work.

### **Conclusion**

We used the perspective of basic human needs theory to frame a mediation model by introducing attention seeking as a critical mechanism and linking phubbing to selfie liking. To fully comprehend the relationship between phubbing and selfie liking, we added gender as a moderator. The findings highlight the importance of researching attention seeking to understand the relationship between phubbing and selfie liking, as well as the gender differences in the mediation model. Further, our findings indicate that it is crucial to consider gender in research on selfie-related marketing and selfie addiction.

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